

Appendix D

Tobamovirus Movement Protein

1
SHMV SKIST--LLAPEKFEVKLSVSDKFKWKAPSRVCSIVQSDTISMTANGR-SL
CGMMV SKVSVENSLKPEKFEVKISWVDKLLPNYFSILKYLSITDFSVMKAQSYESL
CGMMV-W SKVSVENSLKPEKFEVKISWVDKLLPNYFSILKYLSITDFSVMKAQSYESL
C-CGMMV SSVGKKNVLKPNFEVKLSWVDRILPDMFTVYRYSVTDYSVIKSKDSECL
CFMMV SKVGVRNALKPEEFVKITWVDKLLPDAFTILKYLSITDFSVMQSKDYEHL
YCGMMV SSVGKKNVLKPNFEVKLSWVDRILPDMFTVYRYSVTDYSVIKSKDSECL
FBMV VELKEPKQLKVNDFVKMSFADKILPRSLTRLRTVSISTENVVKLSGLGST
TMV-CG ???MSYEPKVSDFLALTKKEEILPKAFTRLKTVSISTKDVISVKDESL
CRMV ???MSYEPKVSDFLALTKKEEILPKALTRLKTVSISTKDVISVKESESL
CR-TMV ?MSIVSYEPKVSDFLNLKKEEILPKALTRLKTVSISTKDIISVKESETL
RMV-SH ???MSYEPKVSDFLALTKKEEILPKALTRLKTVSISTKDVISVKESESL
TVCV ?MSIVSYEPKVSDFLNLKKEEILPKALTRLKTVSISTKDIISVKESETL
TMGMV MAVSLRDTVKISEFIDLKQDEILPAFMTKVKSVRISTVDKIMAVKNDL
TMV-OB ---MSKAIVKIDEFIKLSKSEEVLPFAFTRMKSVRSTVDKIMAKENDNI
PMMV MALVVKDDVKISEFINLSAAEKFLPAVMTSVKTVRISKVDKVIAMENDSL
ORSV MALVLRDSIKISEFINLSASEKLLPSALTAVKSVRISKVDKIISYENDTL
TOMV-L MALVVKGKVNINEFIDLKSEKLLPSMFTPVKSVMSKVDKIMVHENESL
TMV-vul MALVVKGKVNINEFIDLTKMEKILPSMFTPVKSVMCVKVDKIMVHENESL
TMV-Rak MALVVKGKVNINEFIDLTKMEKILPSMFTPVKSVMCVKVDKIMVHENESL

51
SHMV30K FTFDVLKDVLLKHA--EEYTYVDVLGVVLSGQWLLPKGTPGSAEIIILLDSRL
CGMMV30K VPKVLLRGV--DL-TKHLVYVTLGVVSGVWNVPESCRGGATVALVDTRM
CGMMV-W VPKVLLRGV--DL-TKHLVYVTLGVVSGVWNVPESCRGGATVALVDTRM
C-CGMMV IPVDDLRLGV--DL-SKSKYVTLGVVISGVWTIPENCAGGATVALVDTRM
CFMMV IPVDDLRLGV--DF-SKSKYVTLGVVISGVWTIPENCAGGATVALVDTRM
YCGMMV IPVDDLRLGV--DL-SKSKYVTLGVVISGVWTIPENCAGGATVALVDTRM
FBMV VNLNLLKGV--VLNSESKEYVTIRGVVISGVWVPEGGGGGATVTLMDRRM
TMVCG CDIDLLVNV--PL-DKYRYVGLGVVFTGEWLVPDFVKGGVTVSVIDKRL
CRMV CDIDLLVNV--PL-DKYRYVGLGVVFTGEWLVPDFVKGGVTVSVIDKRL
CRTMV CDIDLLINV--PL-DKYRYVGLGAVFTGEWLVPDFVKGGVTVSVIDKRL
RMV-SH CDIDLLVNV--PL-DKYRYVGLGAVFTGEWLVPDFVKGGVTVSVIDKRL
TVCV CDIDLLINV--PL-DKYRYVGLGAVFTGEWLVPDFVKGGVTVSVIDKRL
TMGMVA 30KSDVDLLKGV--KL-VKKGVCCLADLVVSGEWNLPDNCRGGSVCIVDKRM
TMV OB SEVDLLKGV--KL-VKNGYVCLVGLVVSGEWNLPDNCRGGSICLIDKRM
PMMV SDVNLLKGV--KL-VKDGVCCLAGLVVSGEWNLPDNCRGGSVCIVDKRM
ORSV 30K SDIDLLKGV--KL-VENGYVCLAGLVVTEWNLPDNCRGGSICLIDKRM
TMVL30K SEVNLLKGV--KL-IEGGYVCLVGLVVSGEWNLPDNCRGGSVCIVDKRM
TMVOM30K SEVNLLKGV--KL-IDSGYVCLAGLVVTEWNLPDNCRGGSVCIVDKRM
TMV-RAK SEVNLLKGV--KL-IDSGYVCLAGLVVTEWNLPDNCRGGSVCIVDKRM

101
SHMV30K -KGKASVLAVFNCRAATQEFQFLISPGYSLTCADALKKPFIEISCNVIDLP
CGMMV30K HSAEGTICKFSAPATVREFSVRFIPNYSVVAADALRDPWSLFVRLSNVG
CGMMV-W HSAEGTICKFSAPATVREFSVRFIPNYSVVAADALRDPWSLFVRLSNVG
C-CGMMV SMVDEGTICKFSVAASRDFTVKLIPNYYVAASDASSKPWSIFVRVSGVR
CFMMV SLVSEGTICKFSVAASRDFTVKLIPNYYVTAADASSKPWSIFVRVSGVR
YCGMMV SMVDEGTICKFSVAASRDFTVKLIPNYYVLASDASSKPWSIFVRVSGVR
FBMV KGFKNGLVAEFKTRASSRDFQFKFIPNYSMCDVDDVKRAPWELFFKLGVGP
TMVCG ENSKECIIGTYRAAAKDRFQFKLVPNYFVSVADAKRKPQVHVRIQNLK
CRMV ENSKECIIGTYRAAAKDRFQFKLVPNYFVSVADAKRKPQVHVRIQNLK
CRTMV ANSKECVIGTYRAAAKSRFQFKLVPNYFVSTVDAKRKPQVHVRIQDLK
RMV-SH ENSRESMIGTYRAAAKDRFQFKLVPNYFVSTVDAKRKPQVHVRIQNLK
TVCV VNSKECVIGTYRAAAKSRFQFKLVPNYFVSTVDAKRKPQVHVRIQDLK
TMGMVA 30KKRSKEATLGAYHAPACKKNFSFKLIPNYSITSEDAEKHPQVLVNIKGVA
TMV OB QRHNEATLGSYTTKASKKNFSFKLIPNYSITSQDAERPWEVMVNIRGVA

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PMMV      QRDDEATLGSYRTSAAKKRFAFKLI PNYSITTADAERKVWQVLVNIRGVA
ORSV 30K  KRANEATLGSYHTSACKKRFTFKI IPNYSVTTADALKEIWQVMTNIRGVE
TMVL30K   ERADEATLGSYTAAAKKRFQFKVVPNYGITTDAEKNIWQVLVNIKNVK
TMVOM30K  ERADEATLGSYTAAAKKRFQFKVVPNYAITTQDAMKNVWQVLVNI RNVK
TMV-RAK   ERADEATLGSYTAAAKKRFQFKVVPNYAITTQDAMKNVWQVLVNI RNVK

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SHMV30K   VKDGF TPLSVEIACLVQFSNCVITRSLTMKLKE-N--PATRTF---SAEE
CGMMV30K  IKDGFHPLTLEVACL VATTNSIIKKGLRASVVE-SVSSDQSI---VLDS
CGMMV-W   IKDGFHPLTLEVACL VATTNSIIKKGLRASVVE-SVSSDQSI---VLDS
C-CGMMV   IKEGFSPLTLEIASLVATTNSILKKGLRVSVLE-SVVGSDASI---NLD T
CFMMV     IKDGFSP L TLEIASLVATTNSILKKGLRVSVIE-SVVGSDASV---SLDT
YCGMMV    IKEGFSPLTLEIASLVATTNSILKKGLRVSVLE-SVVGSDASI---NLD T
FPMV      IEDGYYPLAIEIATLVEQSR TIINHGLRATILKRCDDISDLELPSADLDE
TMVCG     IEAGWQPLALEVVS VAMVTNNVVVKGLREKVIA-VNDPNVEGF-EGVVDD
CRMV      IEAGWQPLALEVVS VAMVTNNVVVKGLREKVIA-VNDPNVEGF-EGVVDD
CRTMV     IEAGWQPLALEVVS VAMVTNNVMKGLREKVVA-INDPDVEGF-EGV VDE
RMV-SH    IEAGWQPLALEVVS VAMVTNNVVVKGLREKVIA-VNDPNVEGF-EGV VDD
TVCV      IEAGWQPLALEVVS VAMVTNNVMKGLREKVVA-INDPDVEGF-EGV VDE
TMGMVA 30K MEEGYCPLSLEFVSICV VHKNNVRKGLRERILS-VTDGSP IELTEKVVVE
TMV OB    MSEGWCPLSLEFVSVCIVH KNNVRKGLREKVTA-VSEDDAIELTEEVVDE
PMMV      MEKGFCPLSLEFVSVCIVH KSNIKLGLREKITS-VSEGGPVELTEAVVDE
ORSV 30K  MEKGFCPLSLEFVSICV VYLNNIKLGLREKILN-VTEGGPTELTEAVVDE
TMVL30K   MSAGYCPLSLEFVSVCIVY KNNIKLGLREKVTS-VNDGGPMELSEEVVDE
TMVOM30K  MSAGFCPLSLEFVSVCIVY RNNIKLGLREKITN-VRDGGPMELTEEVVDE
TMV-RAK   MSAGFCPLSLEFVSVCIVY RNNIKIGLREKITN-VRDGGPMELTEEVVDE

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SHMV30K   VDELLGSMTTLRSIEGLRKKKEP
CGMMV30K  LSEKVEPFFDKVPISA AVMARDP
CGMMV-W   LSEKVEPFFDKVPISA AVMARDP
C-CGMMV   VSDKVQPFFD SVPITA AAVIARDR
CFMMV     LSEKVQPFFD SVPITA S VVS RDR
YCGMMV    VSDKVQPFFD SVPITA AAVIARDR
FPMV      SIELVSNSNIVSKRKTHKKGKKR
TMVCG     FVDSVAAFKA VDTFRKKKKRIGG
CRMV      FVDSVAAFKA IDSFRKKKKRIGG
CRTMV     FVDSVAAFKA VDNFRKKKKVVEE
RMV-SH    FVDSVAAFKA IDSFRKKKKKIGG
TVCV      FVDSVAAFKA VDNFRKKKKVVEE
TMGMVA 30K FVDEVPM AVKLEKVPENKKEMVG
TMV OB    FIEAVPMARR LQNLRKPKYNKEK
PMMV      FIESVPMADRLRKFRNQSKKGSN
ORSV 30K  FVEKVPMAAR LKSFRSVNKKKPS
TMVL30K   FMENVPM S VRLAKFR TKSSKRGP
TMVOM30K  FMEDVPMSIR LAKFRSRTGKKSD
TMV-RAK   FMEDVPMSIR LAKFRSRTGKKSV

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